ciety, on the 28th of June, the object of which was to detail some new facts respecting it. Finding that charcoal, though ignited to whiteness, will not burn or decompose oxymuriatic gas, he was led to institute experiments to determine whether oxygen could be procured from it by any means; and the results of his inquiries are, that there is no proof whatever of its containing that substance. Muriatic acid gas may be decomposed into oxymuriatic acid, and hydrogen. In all cases in which oxygen gas is procured from oxymuriatic gas, water is present; and the oxygen is furnished by the water; and hydrogen is always combined with the oxymuriatic gas, so that as inflammable bodies decompose water by attracting oxygen substance, oxymuriatic acid decomposes it by attracting hydrogen. Mr. Davy has detailed some experiments, which render it probable that the substance called hyperoxymuriatic acid, is in fact the simple basis of the muriatic compounds, and that it forms oxymuriatic acid, by uniting to hydrogen, and common muriatic acid by uniting to more hydrogen.

In attempting to decompose oxymuriatic acid gas, by the combustion of phosphorus and the action of ammonia, Mr. Davy discovered a very singular compound, which though composed of oxymuriatic acid and ammonia, with a little phosphorus, is neither fusible, volatile, nor decomposable at a white heat, and neither soluble in acid, nor alkaline menstrua; and possessed of no taste or smell.

Mr. Davy has detailed nine modes of decomposing common salt, founded on these new facts, and has formed nine deductions from them respecting the composition of chemical agents in general.

Observations....The great use made of oxymuriatic acid in the arts renders the above information peculiarly interesting. The facts related are to be understood of oxymuriatic gas, deprived of its water by a previous process, for this gas in its common state has been shown to contain oxygen by Mr. Davy himself, having in his lectures exhibited the combustion in it of various inflammable substances, of which that of leaf copper was peculiarly brilliant.

Though dry oxymuriatic and muriatic gases, do not as yet yield oxygen to chemical operations, we must not conclude that they are proved not to contain it, on the contrary there are many strong analogies to support the affirmative, and the most enlightened chemists are of this opinion.

An account of the Method of manufacturing Salt at Moutiers, in the Department of Mont-Blanc. By M. Berthier, Mine Engineer.

Journal Des Mines.

Continued from p. 62, No. XXIV

When the brine which has been passed through these sheds, has arrived to, at least, 16° of concentration, it is conveyed into the clearing cisterns

These clearing cisterns are large basins formed of planks enclosed in covered buildings. The salt-work has two of them, one on each side of the river. In these cisterns the brine which has been graduated is kept in store, ready to be conveyed to the boilers. Here it becomes clearer, and deposits every substance that it holds suspended.

There are at the salt works four boilers, of an equal size and form, to evaporate the graduated brine. They are between seven and eight metres long, five or six broad, and half a metre deep. Their solid contents is 23114 decimetres cubes, and when filled with brine they hold 20800. They are made of strong iron plates, between 0 004 and 0 005 met. (1-6th in.) thick, fastened together by rivets. The bottom of them is level with the floor of the boiling-house, and sustained at its circumference by twelve cast iron pillars, 0 12 metres square. Besides these, there lie across the boilers even with their edge, very large beams parallel to one another, to which a great number of hooks are fastened which are fixed to the bottom of the boiler. The under part of these boilers is entirely open. One part is taken up by the fire place, and the flame circulates under the remainder. The

fire-place is 2.5 metres broad, and 3.5 metres deep. It has a grate formed of triangular cast iron bars, which is 0 85 metres (34 inches) below the bottom of the boilers. The ash-hole under the grate is closed up, and only opened when the ashes are withdrawn. The air is supplied by two side channels which are opened alternately according to the direction of the wind. The chimney is at that end which is opposite to the fire-place, it passes obliquely along one part of the building which it heats, and which is used as a drying room, and then goes out at top. This chimney is furnished with a register, by which the opening may be altered at pleasure, in order to regulate the draught. A small wall placed at the end of the fire-place, obliges the heated air and smoke to distribute themselves under the boiler. Lastly, each of the boilers is covered with a very large wooden chimney, which comes down within two metres of the floor, and carries the steam out of the building.

When a boiling is intended to take place, a boiler is filled with brine from the cisterns, by pipes for that purpose. Wood is then placed on the grate, and lighted; the fire is kept up brisk, so as to boil the brine quickly during the whole of the first part of the boiling or *schelotage*, which generally takes up twenty-six hours, when the brine is at 18° hydrom.

During all this time, the boiler is kept constantly full. As soon as the brine begins to boil, a quantity of scum is formed, which is thrown on the sides and taken away. This scum arises from the vegetable extractive matter that is contained in the brine, and is separated by heat, and its combination with oxygen; but some still remains in the brine when the boiling is finished. It is not customary at Moutiers to add any bullock's blood, or white of eggs, which would probably separate the whole of this extract. In a short time the sulphate of lime, with which the brine is saturated, begins to settle at the bottom of the boiler, and accumulates in those parts which are the coolest; it draws down along with it a good deal of sulphate of soda, and common salt, and forms a mixture which is called *schelot*. In order to get rid of this, there is placed near the edges of the boiler between the beams, square troughs of plate-iron, and peels are used to collect this deposit and convey it into the troughs, when these are full, they are taken away, drained for a few minutes, and emptied into a hole sunk in the floor, near the workman: they are then replaced, and the same is repeated as often as is necessary. In about seventeen hours, the salt begins to appear: nevertheless more brine is still added, and the deposit separated, for nine hours, at the end of which time the boiler is full of water at 27°. hydrom. ready to yield its salt. Now begins the collecting of the salt.

This collection is made either in the boilers, or on the rope shed.

When the salt is collected in the boilers, the fire is diminished; and no more than four or five billets are put into the fire place, which is sufficient to keep the water very hot, but not boiling. The salt forms what are called *pieds de mouche*. It crystallises in the form of hoppers at the surface of the liquid, and produces a crust, which the workman throws down occasionally, by sprinkling on it some brine, by means of a small wooden shovel. He draws the scum to one corner, and throws it out of the boiler; he then collects the salt with a peel, and puts it into wooden funnels, supported between the beams. These funnels when filled are left till the moisture has entirely drained off by the opening at bottom, and they are then carried to the drying room; from whence, when the salt is dry, they are carried to the stores, where no separation is made between the salt collected at the beginning or end of a boiling. The collecting of the salt is continued, by a very small fire, during five or six days, until such time as the salt becomes yellow, bitter, and too impure to be saleable. The boiler judges entirely by practice, and seldom or never makes use of the hydrometer that was formerly employed. The mother water that remains is reddish, thick, viscous, bitter, and has a strong smell:

it is drawn off into a cistern, used for that purpose, and a new boiling is begun.

In fine weather, which lasts at the most three or four months, the brine when saturated is conveyed to the rope shed, and raised up as often as is necessary, by means of the buckets, until it becomes thick and viscous, or what is called *fat*. It is then conveyed either into one of the cisterns of that shed, or immediately to the great cistern of the mother waters.

To be Continued.

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